Run2b Silicon 1% Teststand

- Readout at SiDet using sequencer and VRB
  - Buchholz, Mendoza, Utes et. al
- Differences between SASEQ and Sequencers/VRB
  - Significant Improvements in understanding errors

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Errors

Types of errors (SVX4 and controls)

- Incomplete Readout
- Data read back is all 0's
- Missing bytes in data (switches chan and data)
- Word length is wrong (indicates other problems)
- Lose cal inject signal from svx4 chip even though command for cal inject is going to svx4 chip
- Differences between SiDet and NU- now fewer

Read 10,000 events /mode

- VRBC mode
  - Data is 0's- 0.7%
  - Incomplete Readout 0.7%
    - These may be the same events
    - Problem is less in cal inject mode by 1/10
- 1553 Mode
  - Repeated events- 2.6%
    - Less of a problem in cal inject mode
- SCL Mode
  - Data transferred is longer than expected
  - No clocks during acquire

Problems- continued

- Flying geese- missing bytes in readout
  - Problem continues at SiDet at the fraction of a %
- Lose the cal inject signal in data
  - Saw it once since latest firmware change
- Lose digitize clock after cal inject
  - Saw after switching back and forth between IDLE and Acquire in 1553 mode
- VRBC does not follow VME standards for maintaining data until end of DTACK
  - Asked Mark Bowden and Ted Zmuda to investigate
- Detailed logic analyzer/scope/Vmetro traces at
  - **www.nuhep.nwu.edu/~dave/d0**

Causes/ Solutions?

- Repeated events may be timing problem
  - Communicate via VME to VRBC and via 1553 to sequencer controller
  - Have to tickle system to get all 10 chips to readout, starts by reading only 2
- Incomplete readout
  - Mike's latest change to PRD2 in firmware made an enormous improvement- maybe needs little tweaking
- Flying Geese- missing bytes
  - Timing problem in sequencer?

Causes/ Solutions ?

- SCL mode- PDAQ
  - No clocks during ACQUIRE- got new firmware from Ted Zmuda to try out

What's next +Conclusions

- Harald's download gui
  - Works!!!- links to new Database at D0
  - Uses 1553 mode
- Maciek's Monitoring
  - Still waiting for Computing division security concerns
- Install interface board crate, low voltage PS
- Data in SBC →Linux computer
  - Not there yet but closer
- Lots of Improvements in electronics/ firmware
  - Thanks to Mike Utes